

CLAIMS

1. A resealable transfer set for transferring fluid between a first container having an opening sealed with a pierceable closure and a second container, said transfer set comprising: a general tubular elastomeric fluid transfer valve member mounted on said first container having an open end portion generally coaxially aligned with said opening of said first container and a generally closed portion spaced from said open end portion having a longitudinal slit therethrough, and a piercing member telescopically received within said fluid transfer valve member between said open end portion and said generally closed portion generally coaxially aligned with said first container opening, said piercing member having a first relatively sharp piercing end portion opposite said pierceable closure and a second distal end portion opposite said generally closed portion of said transfer valve member, whereby a generally tubular portion of said second container may be driven through said slit in said generally closed portion of said fluid transfer valve member against said second distal end portion of said piercing member, driving said first piercing end portion of said piercing member through said pierceable closure and establishing fluid communication between said first and second containers.

2. The resealable transfer set as defined in Claim 1, wherein said generally tubular elastomeric fluid transfer valve member includes an outwardly tapered tubular portion adjacent said generally closed portion and said piercing member second distal end portion is enlarged to be closely received in said

outwardly tapered tubular portion of said fluid transfer valve member releasably retaining said piercing member in said fluid transfer valve member.

3. The resealable transfer set defined in Claim 2, wherein said transfer
5 set includes a generally tubular luer connector member surrounding said fluid transfer valve member having a lateral opening adjacent said outwardly tapered tubular portion of said elastomeric fluid transfer valve member, permitting said outwardly tapered tubular portion to expand laterally and release said distal end portion of said piercing member.

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4. The resealable transfer set defined in Claim 1, wherein said piercing member includes a generally longitudinally extending external channel establishing fluid communication between said first and second containers through said fluid transfer valve member.

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5. The resealable transfer set defined in Claim 1, wherein said transfer set includes a generally tubular luer connector member generally surrounding said fluid transfer valve member having a first proximate open end portion mounted on said first container and a second open distal end portion adjacent said generally closed portion of said fluid transfer valve member having a luer threaded portion.
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6. The resealable transfer set defined in Claim 5, wherein said generally closed portion of said fluid transfer valve member includes a generally radial annular lip portion overlying a distal end portion of said generally tubular luer connector member retaining and supporting a distal end of said fluid transfer valve member on 5 said first container.

7. The resealable transfer set defined in Claim 5, wherein said transfer set includes a cup-shaped closure surrounding said generally tubular luer connector member having an open end mounted on said first container and a closed distal end.

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8. The resealable transfer set defined in Claim 1, wherein said transfer set includes a cup-shaped closure surrounding said fluid transfer valve member and a closed distal end.

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9. The resealable transfer set defined in Claim 8, wherein said transfer set includes a collar having a first proximate tubular portion surrounding said open end portion of said fluid transfer valve member mounting said fluid transfer set on said first container and a second distal tubular portion surrounding a portion of said cup-shaped closure adjacent said open end of said closure.

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10. The resealable transfer set defined in Claim 9, wherein said closure includes a frangible portion surrounded by said second distal tubular portion of said collar.

5 11. A resealable transfer set for transferring fluid between a vial having an open end and an elastomeric closure sealing said open end and a second container, said transfer set comprising: a generally tubular elastomeric fluid transfer valve member mounted on said open end of said vial having an open end portion generally coaxially aligned with said open end of said vial and a generally closed 10 distal end portion spaced from said open end portion having a longitudinal slit therethrough, a piercing member telescopically received in said fluid transfer valve member generally coaxially aligned with said elastomeric closure having a first piercing end portion opposite said elastomeric closure and a second distal end portion adjacent said generally closed distal end portion of said fluid transfer valve 15 member, and a generally tubular luer connector member generally surrounding said fluid transfer valve member having a first open proximate tubular portion mounted on said vial open end and a second distal end portion adjacent said generally closed portion of said fluid transfer valve member having a luer threaded portion, whereby a generally tubular portion of said second container having a luer connector may be 20 threaded on said luer threaded portion of said luer connector member, driving said generally tubular portion of said second container through said slit in said generally closed portion of said fluid transfer valve member against said second distal end

portion of said piercing member, driving said piercing end of said piercing member through said elastomeric closure in said vial open end and establishing fluid communication between said vial and said second container.

5 12. The resealable transfer set defined in Claim 11, wherein said generally tubular elastomeric fluid transfer valve member includes an outwardly tapered enlarged tubular portion adjacent said generally closed portion of said fluid transfer valve member and said piercing member second distal end portion is enlarged to be closely received in said enlarged tubular portion of said fluid transfer
10 valve member, thereby releasably retaining said piercing member in said fluid transfer valve member.

13. The resealable transfer set defined in Claim 12, wherein said generally tubular luer connector member includes a lateral opening adjacent said 15 outwardly tapered enlarged tubular portion of said fluid transfer valve member permitting said enlarged tubular portion of said fluid transfer valve member to expand laterally as said generally tubular portion of said second container is driven through said slit and release said piercing member.

20 14. The resealable transfer set defined in Claim 11, wherein said piercing member includes a generally longitudinally extending external channel establishing

fluid communication between said vial and said second container through said fluid transfer valve member.

15. The resealable transfer set defined in Claim 11, wherein said generally closed portion of said fluid transfer valve member includes a generally radial annular lip portion overlying said distal end portion of said generally tubular luer connector member retaining and supporting a distal end of said fluid transfer valve member in said luer connector member.

10 16. The resealable transfer set defined in Claim 11, wherein said transfer set includes a cup-shaped closure surrounding said generally tubular luer connector member having an open end mounted on said vial open end and a closed distal end.

17. The resealable transfer set defined in Claim 16, wherein said transfer set includes a collar having a first proximate tubular portion surrounding said open end portion of said fluid transfer valve member having a radial portion received in a reduced diameter neck portion of said vial adjacent said open end and a second distal tubular portion surrounding a portion of said cup-shaped closure adjacent said open end of said closure and said closure having a frangible portion surrounded by said 20 second distal tubular portion of said collar.

18. A resealable transfer set for transferring fluid between a vial having an open end sealed with an elastomeric stopper and a second container having a tubular portion and a luer connector surrounding said tubular portion, said transfer set comprising: a generally tubular elastomeric fluid transfer valve member having

5 an open end portion generally coaxially aligned with said open end of said vial mounted on said vial open end and a generally closed distal end portion having a longitudinal slit therethrough, a piercing member telescopically received within said fluid transfer valve member generally coaxially aligned with said elastomeric stopper having a piercing proximate end portion opposite said elastomeric stopper

10 and a second distal end portion adjacent said generally closed portion of said fluid transfer valve member, a generally tubular luer connector member surrounding said fluid transfer valve member including an open proximate end having a radial portion overlying said elastomeric stopper and an open distal end portion adjacent said generally closed portion of said fluid transfer valve member, and a collar including a

15 radial portion overlying said radial portion of said luer connector member, a tubular portion surrounding said elastomeric stopper and a neck portion of said vial adjacent said open end and a free end portion received in a reduced diameter portion of said vial adjacent said rim portion securing said transfer set on said vial, whereby threading of said luer connector of said second container on said luer connector of

20 said luer connector member of said transfer set drives said tubular end portion of said container through said longitudinal slit of said generally closed portion of said fluid transfer valve member against said distal end portion of said piercing member, driving said piercing end portion of said piercing member through said elastomeric

stopper and establishing fluid communication between said vial and said second container.

19. The resealable transfer set defined in Claim 18, wherein said
5 generally tubular elastomeric fluid transfer valve member includes an outwardly tapered enlarged tubular portion adjacent said generally closed portion and said piercing member distal end portion is enlarged to be closely received in said outwardly tapered enlarged tubular portion of said fluid transfer valve member, releasably retaining said piercing member in said fluid transfer valve member.

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20. The resealable transfer set defined in Claim 18, wherein said piercing member includes a generally longitudinal external channel establishing fluid communication between said vial and said container through said fluid transfer valve member.

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21. The resealable transfer set defined in Claim 18, wherein said transfer set includes a cup-shaped closure surrounding said luer connector member including an open end portion having a radial portion received beneath said radial portion of said collar securing said closure on said vial and a closed distal end portion.

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22. The resealable transfer set defined in Claim 21, wherein said closure includes a frangible portion adjacent said radial portion and said collar includes a

second tubular portion adjacent said radial portion overlying said frangible portion of said closure.

23. The resealable transfer set defined in Claim 18, wherein said generally closed portion of said fluid transfer member includes a generally radial annular lip portion overlying a distal end portion of said generally tubular luer connector member retaining and supporting a distal end of said fluid transfer valve member in said luer connector member.